

Claims

1. Method for producing a steel product, in particular a steel sheet or steel strip, with a high yield strength,

- wherein a steel strip or sheet is produced from steel which contains (in % by weight):

C:	1.00 %
Mn:	7.00 to 30.00 %
Al:	1.00 to 10.00 %
Si:	2.50 to 8.00 %
Al + Si:	3.50 to 12.00 %
B:	0.01 %
Ni:	8.00 %
Cu:	3.00 %
N:	0.60 %
Nb:	0.30 %
Ti:	0.30 %
V:	0.30 %
P:	0.01 %

and iron and unavoidable impurities as the remainder,

- from which strip or sheet the finished steel product is subsequently produced by cold forming that takes place at a degree of cold forming of 2 to 25 %.

2. Method according to claim 1, characterised in that the degree of cold forming is 15 % maximum.

3. Method according to claim 2, characterised in that the degree of cold forming is 10 % maximum.

4. Method according to any one of the preceding claims, characterised in that the steel strip is cold formed as a hot strip to form the product.

5. Method according to any one of claims 1 to 3, characterised in that the steel strip is cold formed as a cold strip to form the product.

6. Method according to any one of the preceding claims, characterised in that production of the steel strip or sheet comprises the following working steps:

- casting the steel to form an ingoing material, such as slabs, thin slabs or a cast strip,
- hot rolling the ingoing material to form a hot strip,
- winding the hot strip.

7. Method according to claim 6, characterised in that the ingoing material is reheated to at least 1,100 C before hot rolling.

8. Method according to claim 6, characterised in that the ingoing material is used directly for hot rolling at a temperature of at least 1,100 C.

9. Method according to any one of claims 6 to 8, characterised in that the final temperature of the hot rolling is at least 800 C.
10. Method according to any one of claims 6 to 9, characterised in that the winding temperature is 450 C to 700 C.
11. Method according to any one of claims 6 to 10, characterised in that the hot strip is cold rolled to form a cold strip, in that the cold strip is recrystallisation annealed, and in that, after recrystallisation annealing, the cold strip is finish cold formed.
12. Method according to claim 11, characterised in that recrystallisation annealing is carried out at an annealing temperature of 600 C to 1,100 C.
13. Method according to claim 12, characterised in that annealing is carried out as bell-type annealing at an annealing temperature of 600 C to 750 C.
14. Method according to claim 12, characterised in that annealing is carried out as continuous annealing at an annealing temperature of 750 C to 1,100 C.
15. Method according to any one of claims 11 to 14, characterised in that cold rolling is carried out at a degree of cold rolling of 30 % to 75 %.
16. Method according to any one of the preceding claims, characterised in that the steel contains more than 2.70 % by weight silicon.
17. Method according to any one of the preceding claims, characterised in that the steel contains 0.002 % by weight to 0.01 % by weight boron.
18. Method according to claim 17, characterised in that the steel contains 0.003 to 0.008 % by weight boron.
19. Steel sheet according to any one of the preceding claims, characterised in that the steel contains 0.10 to 1.00 % by weight carbon.